

Set	Items	Description
S1	8	(RECA (50N) CAMPYLOBACTER?) AND FETUS?
S2	4	RD (unique items)

?t s2/6/all

*all after 1.0 date*

2/6/1 (Item 1 from file: 155)  
09341983 98053868

Nested DNA inversion of Campylobacter fetus S-layer genes is recA dependent.  
Dec 1997

2/6/2 (Item 1 from file: 5)  
12634645 BIOSIS NO.: 200000388147

Campylobacter fetus phylogeny assessed by examination of recA and sapD.  
2000

2/6/3 (Item 2 from file: 5)  
12415647 BIOSIS NO.: 200000169149

Roles of the surface layer proteins of Campylobacter fetus subsp. fetus in ovine abortion.  
2000

2/6/4 (Item 1 from file: 357)  
0228401 DBA Accession No.: 98-09998

Mutant Campylobacter fetus encoding heterologous protein or encoding only one sapA homolog- useful in vaccines, e.g. against infectious abortion or infertility in ungulates, and are only briefly maintained in the host 1998

?s (s5 or s6) and campylobact?  
4840 S5  
31071 S6  
22186 CAMPYLOBACT?  
S7 7 (S5 OR S6) AND CAMPYLOBACT?  
?rd  
...completed examining records  
S8 7 RD (unique items)  
?t s8/6/all

8/6/1 (Item 1 from file: 73)  
10659866 EMBASE No: 2000135356  
Study of macrolide, lincosamide, and streptogramin B antibiotics  
resistance in Staphylococcus aureus  
2000

8/6/2 (Item 2 from file: 73)  
07732327 EMBASE No: 1999214623  
Fused and overlapping rpoB and rpoC genes in helicobacters,  
campylobacters, and related bacteria  
1999

8/6/3 (Item 3 from file: 73)  
07637477 EMBASE No: 1999125628  
Helicobacter pylori with separate beta- and beta'-subunits of RNA  
polymerase is viable and can colonize conventional mice  
1999

8/6/4 (Item 4 from file: 73)  
07631009 EMBASE No: 1999110059  
Apoptotic effect of outer-membrane proteins from Campylobacter jejuni  
on chicken lymphocytes  
1999

8/6/5 (Item 5 from file: 73)  
07486689 EMBASE No: 1998267274  
The largest subunits of RNA polymerase from gastric Helicobacters are  
tethered  
31 JUL 1998

8/6/6 (Item 6 from file: 73)  
06135789 EMBASE No: 1995169473  
NASBA  
1995

8/6/7 (Item 7 from file: 73)  
05012249 EMBASE No: 1992152465  
Evolutionary relationships among sulfur- and iron-oxidizing eubacteria  
1992

File 155:MEDLINE(R) 1966-2002/Jul W2  
 File 5:Biosis Previews(R) 1969-2002/Jul W2  
 (c) 2002 BIOSIS  
 File 73:EMBASE 1974-2002/Jul W1  
 (c) 2002 Elsevier Science B.V.  
**\*File 73: For information about Explode feature please see Help News73.**  
 File 144:Pascal 1973-2002/Jul W2  
 (c) 2002 INIST/CNRS  
 File 10:AGRICOLA 70-2002/Jul  
 (c) format only 2002 The Dialog Corporation  
 File 357:Derwent Biotech Res. 1982-2002/June W1  
 (c) 2002 Thomson Derwent & ISI  
**\*File 357: Price changes as of 1/1/02. Please see HELP RATES 357.**  
 Derwent announces file enhancements. Please see HELP NEWS 357.  
 File 156:ToxFile 1966-2002/Apr W4  
 (c) 2002  
**\*File 156: This file will be reloaded. Accession Numbers will change.**  
 File 94:JICST-EPlus 1985-2002/May W4  
 (c)2002 Japan Science and Tech Corp(JST)  
**\*File 94: There is no data missing. UDs have been adjusted to reflect the current months data. See Help News94 for details.**  
 File 35:Dissertation Abs Online 1861-2002/Jun  
 (c) 2002 ProQuest Info&Learning  
 File 203:AGRIS 1974-2002/Apr  
 Dist by NAL, Intl Copr. All rights reserved  
 File 65:Inside Conferences 1993-2002/Jul W2  
 (c) 2002 BLDSC all rts. reserv.  
 File 77:Conference Papers Index 1973-2002/Jul  
 (c) 2002 Cambridge Sci Abs  
 File 654:US PAT.FULL. 1976-2002/Jul 09  
 (c) FORMAT ONLY 2002 THE DIALOG CORP.  
**\*File 654: is redesigned with new search and display features. See HELP NEWS654 for details. Reassignments current through Dec. 12, 2001.**  
 File 636:Gale Group Newsletter DB(TM) 1987-2002/Jul 17  
 (c) 2002 The Gale Group  
 File 349:PCT FULLTEXT 1983-2002/UB=20020711,UT=20020704  
 (c) 2002 WIPO/Univentio  
 File 148:Gale Group Trade & Industry DB 1976-2002/Jul 17  
 (c)2002 The Gale Group

*Updated Search 7/02*

Set	Items	Description
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Executing TD579

>>>SET HILIGHT: use ON, OFF, or 1-5 characters

Processing

Processing

Processed 10 of 16 files ...

Processing

Processing

Processing

Processing

Processing

Completed processing all files

	0	S-LAYER/TI
	3982375	S/TI
	273252	LAYER?/TI
	1350	S/TI(N)LAYER?/TI
	368	SAPA/TI
	3939163	BACTERI?
	2936554	MICROORGAN?
	39819	CAMPYLOBACT?
S1	993	(S-LAYER OR (S(N)LAYER?) OR SAPA)/TI AND (BACTERI? OR MICROORGAN? OR CAMPYLOBACT?)

**Expression, secretion and antigenic variation of bacterial S - layer proteins.**

Sep 1996

• Descriptors: Antigens, **Bacterial** ; \* **Bacterial** Outer Membrane Proteins;

\*Gene Expression Regulation, **Bacterial** ; Molecular Sequence Data

Molecular Sequence Databank No.: GENBANK/D90050; GENBANK/J02767;  
GENBANK/L04661; GENBANK/L15800; GENBANK/L37348; GENBANK/M14238;  
GENBANK/M17895; GENBANK/M19115; GENBANK/M28361; GENBANK/M31069;  
GENBANK/M37647; GENBANK/M59200; GENBANK/M62816; GENBANK/M64655;  
GENBANK/M84760; GENBANK/X16353; GENBANK/X57333; GENBANK/X58296;  
GENBANK/X58297; GENBANK/X69103; GENBANK/X71092; GENBANK/X71412;  
GENBANK/X77929; GENBANK/Z14250; GENBANK/Z36946

CAS Registry No.: 0 (Antigens, Bacterial); 0 (Bacterial Outer Membrane Proteins)

Generation of Campylobacter fetus S - layer protein diversity  
utilizes a single promoter on an invertible DNA segment.  
Mar 1996

Tags: Support, U.S. Gov't, Non-P.H.S.; Support, U.S. Gov't, P.H.S.

Descriptors: **Bacterial** Outer Membrane Proteins--genetics--GE; \*  
**Campylobacter** fetus--genetics--GE; \*DNA, **Bacterial** --genetics--GE;  
\*Promoter Regions (Genetics); Base Sequence; Genes, **Bacterial** ; Genes,  
Structural, **Bacterial** ; Molecular Sequence Data; Mutagenesis, Insertional;  
Phenotype; Variation (Genetics)

CAS Registry No.: 0 (Bacterial Outer Membrane Proteins); 0 (DNA,  
Bacterial); 0 (streptococcal cell surface antigen I-II)

Southern blotting analyses of strains of *Campylobacter fetus* using the conserved region of *sapA* .

Dec 1995

Descriptors: **Bacterial** Proteins--genetics--GE; \* **Campylobacter fetus** --genetics--GE; **Bacterial** Typing Techniques; Base Sequence; Blotting, Southern; **Campylobacter fetus**--classification--CL; Conserved Sequence; DNA Primers--genetics--GE; DNA, **Bacterial** --genetics--GE; Molecular Sequence Data

CAS Registry No.: 0 (Bacterial Proteins); 0 (DNA Primers); 0 (DNA, Bacterial); 0 (streptococcal cell surface antigen I-II)

**Segmental conservation of sapA sequences in type B Campylobacter fetus cells.**

Jun 23 1995

Tags: Comparative Study; Support, U.S. Gov't, Non-P.H.S.; Support, U.S. Gov't, P.H.S.

Descriptors: **Bacterial** Proteins--genetics--GE; \* **Campylobacter** fetus --genetics--GE; \*Genes, **Bacterial** ; Amino Acid Sequence; Antigens, **Bacterial** --biosynthesis--BI; Antigens, **Bacterial** --genetics--GE; **Bacterial** Proteins--biosynthesis--BI; Base Sequence; Blotting, Southern; **Campylobacter** fetus--classification--CL; Conserved Sequence; Cross Reactions; DNA, **Bacterial** --analysis--AN; Lipopolysaccharides--analysis --AN; Molecular Sequence Data; Mutation; Plasmids; Restriction Mapping; Sequence Homology, Amino Acid; Sequence Homology, Nucleic Acid

Molecular Sequence Databank No.: GENBANK/U25133

CAS Registry No.: 0 (Antigens, Bacterial); 0 (Bacterial Proteins); 0 (DNA, Bacterial); 0 (Lipopolysaccharides); 0 (Plasmids); 0 (streptococcal cell surface antigen I-II)

Gene Symbol: sapA; sapB

**Protein shift and antigenic variation in the S - layer of  
Campylobacter fetus subsp. venerealis during bovine infection accompanied  
by genomic rearrangement of sapA homologs.**

Apr 1995

Tags: Animal; Female; Human; Support, U.S. Gov't, Non-P.H.S.; Support,  
U.S. Gov't, P.H.S.

Descriptors: Antigenic Variation; \*Antigens, **Bacterial** --genetics--GE; \*  
**Bacterial** Proteins--genetics--GE; \* **Bacterial** Proteins--immunology--IM;  
\* **Campylobacter** fetus--genetics--GE; \* **Campylobacter** fetus--immunology  
--IM; Antibodies, Monoclonal; **Campylobacter** Infections--microbiology--MI;  
**Campylobacter** Infections--veterinary--VE; **Campylobacter** fetus  
--isolation and purification--IP; Cattle; Cattle Diseases--microbiology--MI  
; DNA, **Bacterial** --genetics--GE; Gene Rearrangement; Genes, **Bacterial** ;  
Microscopy, Immunoelectron; Vaginosis, **Bacterial** --microbiology--MI;  
Vaginosis, **Bacterial** --veterinary--VE

CAS Registry No.: 0 (Antibodies, Monoclonal); 0 (Antigens, **Bacterial**)  
; 0 (**Bacterial** Proteins); 0 (DNA, **Bacterial**); 0 (streptococcal cell  
surface antigen I-II)

Gene Symbol: sapA



A lipopolysaccharide-binding domain of the *Campylobacter fetus* S-layer protein resides within the conserved N terminus of a family of silent and divergent homologs.

Apr 1995

Tags: Support, U.S. Gov't, Non-P.H.S.; Support, U.S. Gov't, P.H.S.

Descriptors: **Bacterial** Proteins--genetics--GE; \* **Campylobacter fetus** --chemistry--CH; \*Lipopolysaccharides--metabolism--ME; Amino Acid Sequence; **Bacterial** Proteins--chemistry--CH; **Bacterial** Proteins--metabolism--ME; Base Sequence; Binding Sites; Blotting, Southern; Cloning, Molecular; Electrophoresis, Gel, Pulsed-Field; Molecular Sequence Data

Molecular Sequence Databank No.: GENBANK/S76860

CAS Registry No.: 0 (Bacterial Proteins); 0 (Lipopolysaccharides); 0 (streptococcal cell surface antigen I-II)

Shift in S - layer protein expression responsible for antigenic variation in *Campylobacter fetus*.

Aug 1993

Tags: Animal; Female; Support, U.S. Gov't, Non-P.H.S.; Support, U.S. Gov't, P.H.S.

Descriptors: Antigens, **Bacterial** --immunology--IM; \* **Bacterial** Proteins --immunology--IM; \* **Campylobacter fetus** --immunology--IM; \*Membrane Proteins--immunology--IM; \*Variation (Genetics); Antibodies, Monoclonal; Antigens, **Bacterial** --metabolism--ME; **Bacterial** Proteins--metabolism--ME; **Campylobacter** Infections--immunology--IM; **Campylobacter** Infections --veterinary--VE; **Campylobacter fetus** --metabolism--ME; Cattle; Cross Reactions; Epitopes; Membrane Proteins--metabolism--ME; Peptide Fragments --immunology--IM; Serine Endopeptidases--metabolism--ME; Species Specificity; Uterus--microbiology--MI

CAS Registry No.: 0 (Antibodies, Monoclonal); 0 (Antigens, Bacterial); 0 (Bacterial Proteins); 0 (Epitopes); 0 (Membrane Proteins); 0 (Peptide Fragments)

Enzyme No.: EC 3.4.21 (Serine Endopeptidases); EC 3.4.21.19 (glutamyl endopeptidase)

**Rearrangement of sapA homologs with conserved and variable regions in  
Campylobacter fetus.**

Aug 1 1993

Tags: Comparative Study; Support, U.S. Gov't, Non-P.H.S.; Support, U.S.  
Gov't, P.H.S.

Descriptors: Antigens, **Bacterial** --genetics--GE; \* **Bacterial** Proteins  
--genetics--GE; \* **Campylobacter** fetus--genetics--GE; \*Genes, Structural,  
**Bacterial** ; Base Sequence; Cloning, Molecular; DNA, **Bacterial** --genetics  
--GE; Gene Rearrangement; Molecular Sequence Data; Phenotype;  
Recombination, Genetic; Restriction Mapping; Sequence Alignment; Sequence  
Homology, Nucleic Acid; Species Specificity

Molecular Sequence Databank No.: GENBANK/L15800

CAS Registry No.: 0 (Antigens, Bacterial); 0 (Bacterial Proteins); 0  
(DNA, Bacterial); 0 (streptococcal cell surface antigen I-II)

Gene Symbol: sapA; sapA1; sapA2; sapA3

Characterization of the *Campylobacter fetus* sapA promoter: evidence that the sapA promoter is deleted in spontaneous mutant strains.

Sep 1992

Tags: Support, U.S. Gov't, P.H.S.

Descriptors: Antigens, **Bacterial** --genetics--GE; \* **Bacterial** Proteins --genetics--GE; \* **Campylobacter fetus**--genetics--GE; \*Promoter Regions (Genetics)--genetics--GE; **Bacterial** Proteins--biosynthesis--BI; Base Sequence; Blotting, Southern; Chromosome Mapping; Cloning, Molecular; Gene Expression Regulation, **Bacterial** ; Molecular Sequence Data; Multigene Family--genetics--GE; Mutagenesis--genetics--GE; Phenotype; Polymerase Chain Reaction; Variation (Genetics)

Molecular Sequence Databank No.: GENBANK/M93985; GENBANK/M94060; GENBANK/M94061; GENBANK/M94062; GENBANK/M94629; GENBANK/S44580; GENBANK/X64378; GENBANK/X64379; GENBANK/X64380; GENBANK/X64381

CAS Registry No.: 0 (Antigens, Bacterial); 0 (Bacterial Proteins); 0 (streptococcal cell surface antigen I-II)

Gene Symbol: SapA

Correlation between molecular size of the surface array protein and morphology and antigenicity of the Campylobacter fetus S layer .  
Jun 1991

Tags: Animal; Male; Support, Non-U.S. Gov't; Support, U.S. Gov't, Non-P.H.S.; Support, U.S. Gov't, P.H.S.

Descriptors: Antigens, **Bacterial** --immunology--IM; \* **Bacterial** Outer Membrane Proteins--chemistry--CH; \* **Campylobacter** fetus--analysis--AN; \*Membrane Glycoproteins--chemistry--CH; **Bacterial** Outer Membrane Proteins --immunology--IM; **Bacterial** Outer Membrane Proteins--ultrastructure--UL; **Campylobacter** fetus--immunology--IM; **Campylobacter** fetus --ultrastructure--UL; Cross Reactions--immunology--IM; Electrophoresis, Polyacrylamide Gel; Freeze Fracturing; Image Processing, Computer-Assisted; Immunoblotting; Membrane Glycoproteins--immunology--IM; Membrane Glycoproteins--ultrastructure--UL; Mice; Molecular Weight

CAS Registry No.: 0 (Antigens, Bacterial); 0 (Bacterial Outer Membrane Proteins); 0 (Membrane Glycoproteins); 0 (bacterial surface-array protein)

**Antigenic differences among** *Campylobacter fetus* S - layer proteins.  
Sep 1990

Tags: Support, Non-U.S. Gov't

Descriptors: **Bacterial** Proteins--immunology--IM; \* **Campylobacter fetus**  
--immunology--IM; \*Epitopes--analysis--AN; Amino Acid Sequence; Antigenic  
Variation; **Bacterial** Proteins--isolation and purification--IP;  
**Bacterial** Proteins--ultrastructure--UL; Blotting, Western; **Campylobacter**  
fetus--growth and development--GD; Electrophoresis, Polyacrylamide Gel;  
Enzyme-Linked Immunosorbent Assay; Immune Sera; Microscopy, Electron;  
Molecular Sequence Data; Molecular Weight; Peptide Mapping

CAS Registry No.: 0 (Bacterial Proteins); 0 (Epitopes); 0 (Immune  
Sera)

4/8/228 (Item 2 from file: 10)

DIALOG(R)File 10:(c) format only 2002 The Dialog Corporation. All rts.  
reserv.

3356058 20384236 Holding Library: AGL

**Biology of** Campylobacter **fetus** S - layer **proteins**  
1993

DESCRIPTORS: **campylobacter** fetus; **bacterial** proteins; surface layers  
; literature reviews;

Section Headings: L832 ANIMAL DISEASES- **BACTERIAL**

4/8/244 (Item 1 from file: 35)

01451809 ORDER NO: AADAA-I9541785

**MOLECULAR GENETICS OF CAMPYLOBACTER FETUS S - LAYERS : STUDIES OF S -  
LAYER GENE ORGANIZATION, LPS-BINDING DOMAINS, AND EXPRESSION (SURFACE  
LAYER PROTEINS)**

Year: 1995



You have 279 files in your file list.  
(To see banners, use SHOW FILES command)  
?s reca (100n) (campylobacter? (3n) fetus?)

Your SELECT statement is:

s reca (100n) (campylobacter? (3n) fetus?)

Items	File
1	5: Biosis Previews(R)_1969-2000/Apr W3
2	34: SciSearch(R) Cited Ref Sci_1990-2000/Apr W2
2	71: ELSEVIER BIOBASE_1994-2000/Apr W1
3	73: EMBASE_1974-2000/Mar W3
2	76: Life Sciences Collection_1982-2000/Feb
Examined 50	files
1	98: General Sci Abs/Full-Text_1984-1999/Oct
1	143: Biol. & Agric. Index_1983-2000/Feb
2	155: MEDLINE(R)_1966-2000/Jun W2
1	156: Toxline(R)_1965-2000/Feb
1	172: EMBASE Alert_2000/Mar W3
Examined 100	files
Examined 150	files
1	349: PCT Fulltext_1983-2000/UB=, UT=20000302
1	357: Derwent Biotechnology Abs_1982-2000/Apr B2
3	440: Current Contents Search(R)_1990-2000/Apr W2
1	484: Periodical Abstracts Plustext_1986-2000/Apr W2
Examined 200	files
Examined 250	files

14 files have one or more items; file list includes 279 files.

?save temp

Temp SearchSave "TD007" stored

?rf

Your last SELECT statement was:

S RECA (100N) (CAMPYLOBACTER? (3N) FETUS?)

Ref	Items	File
N1	3	73: EMBASE_1974-2000/Mar W3
N2	3	440: Current Contents Search(R)_1990-2000/Apr W2
N3	2	34: SciSearch(R) Cited Ref Sci_1990-2000/Apr W2
N4	2	71: ELSEVIER BIOBASE_1994-2000/Apr W1
N5	2	76: Life Sciences Collection_1982-2000/Feb
N6	2	155: MEDLINE(R)_1966-2000/Jun W2
N7	1	5: Biosis Previews(R)_1969-2000/Apr W3
N8	1	98: General Sci Abs/Full-Text_1984-1999/Oct
N9	1	143: Biol. & Agric. Index_1983-2000/Feb
N10	1	156: Toxline(R)_1965-2000/Feb

14 files have one or more items; file list includes 279 files.

- Enter P or PAGE for more -

?p

Your last SELECT statement was:

S RECA (100N) (CAMPYLOBACTER? (3N) FETUS?)

Ref	Items	File
N11	1	172: EMBASE Alert_2000/Mar W3
N12	1	349: PCT Fulltext_1983-2000/UB=, UT=20000302
N13	1	357: Derwent Biotechnology Abs_1982-2000/Apr B2
N14	1	484: Periodical Abstracts Plustext_1986-2000/Apr W2
N15	0	2: INSPEC_1969-2000/Mar W2
N16	0	6: NTIS_1964-2000/May W1
N17	0	8: Ei Compendex(R)_1970-2000/Mar W4
N18	0	9: Business & Industry(R)_Jul/1994-2000/Apr 18
N19	0	10: AGRICOLA_70-2000/Apr

%20 0 14: Mechanical Engineering Abs\_1973-2000/MC  
14 files have one or more items; file list includes 279 files.

- Enter P or PAGE for more -

?b n6 n1:n5 n7:n10 n13 n14;exs

18apr00 15:15:54 User228206 Session D1187.2

\$2.12 1.699 DialUnits File411

\$2.12 Estimated cost File411

\$0.15 TYMNET

\$2.27 Estimated cost this search

\$2.28 Estimated total session cost 1.849 DialUnits

SYSTEM:OS - DIALOG OneSearch

File 155:MEDLINE(R) 1966-2000/Jun W2

(c) format only 2000 Dialog Corporation

**\*File 155: MEDLINE will be reloaded. Accession numbers will change.**

File 73:EMBASE 1974-2000/Mar W3

(c) 2000 Elsevier Science B.V.

**\*File 73: New drug links added. See Help News73.**

File 440:Current Contents Search(R) 1990-2000/Apr W2

(c) 2000 Inst for Sci Info

File 34:SciSearch(R) Cited Ref Sci 1990-2000/Apr W2

(c) 2000 Inst for Sci Info

File 71:ELSEVIER BIOBASE 1994-2000/Apr W1

(c) 2000 Elsevier Science B.V.

File 76:Life Sciences Collection 1982-2000/Feb

(c) 2000 Cambridge Sci Abs

File 5:Biosis Previews(R) 1969-2000/Apr W3

(c) 2000 BIOSIS

File 98:General Sci Abs/Full-Text 1984-1999/Oct

(c) 1999 The HW Wilson Co.

**\*File 98: Due to technical problems the file temporarily is not updating.**

File 143:Biol. & Agric. Index 1983-2000/Feb

(c) 2000 The HW Wilson Co

File 156:Toxline(R) 1965-2000/Feb

(c) format only 2000 The Dialog Corporation

File 357:Derwent Biotechnology Abs 1982-2000/Apr B2

(c) 2000 Derwent Publ Ltd

File 484:Periodical Abstracts Plustext 1986-2000/Apr W2

(c) 2000 Bell & Howell

Set Items Description

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Executing TD007

>>>SET HILIGHT: use ON, OFF, or 1-5 characters

22451 RECA

44062 CAMPYLOBACTER?

362002 FETUS?

S1 20 RECA (100N) (CAMPYLOBACTER? (3N) FETUS?)

?rd

>>>Record 440:10256507 ignored; incomplete bibliographic data, not retained  
in RD set

...completed examining records

S2 4 RD (unique items)

?t s2/3/all

2/3/1 (Item 1 from file: 155)

DIALOG(R)File 155:MEDLINE(R)

(c) format only 2000 Dialog Corporation. All rts. reserv.

10312106 20143788

**Roles of the surface layer proteins of Campylobacter fetus subsp. fetus  
in ovine abortion.**

Grogono-Thomas R; Dworkin J; Blaser MJ; Newell DG

Department of Farm Animal, Royal Veterinary College, Hertfordshire,  
United Kingdom.

、 Infect Immun (UNITED STATES) Mar 2000, 68 (3) p157-91, ISSN  
0019-9567 Journal Code: G07  
Contract/Grant No.: R01 AI 24145, AI, NIAID  
Languages: ENGLISH  
Document type: JOURNAL ARTICLE

**2/3/2 (Item 2 from file: 155)**

DIALOG(R) File 155:MEDLINE(R)

(c) format only 2000 Dialog Corporation. All rts. reserv.

09341183 98053868

**Nested DNA inversion of Campylobacter fetus S-layer genes is recA dependent.**

Dworkin J; Shedd OL; Blaser MJ

Department of Medicine, Vanderbilt University School of Medicine,  
Nashville, Tennessee 37232, USA.

J Bacteriol (UNITED STATES) Dec 1997, 179 (23) p7523-9, ISSN  
0021-9193 Journal Code: HH3

Contract/Grant No.: R01-AI24145, AI, NIAID

Languages: ENGLISH

Document type: JOURNAL ARTICLE

**2/3/3 (Item 1 from file: 76)**

DIALOG(R) File 76:Life Sciences Collection

(c) 2000 Cambridge Sci Abs. All rts. reserv.

02451069 4687956

**Roles of the surface layer proteins of Campylobacter fetus subsp. fetus in ovine abortion**

Grogono Thomas, R.; Dworkin, J.; Blaser, M.J.; Newell, D.G.

Veterinary Laboratories Agency (Weybridge), New Haw, Surrey KT15 3NB,  
United Kingdom

Infection and Immunity vol. 68, no. 3, pp. 1687-1691 (2000)

ISSN: 0019-9567

DOCUMENT TYPE: Journal article LANGUAGE: ENGLISH

SUBFILE: Microbiology Abstracts B: Bacteriology

**2/3/4 (Item 1 from file: 357)**

DIALOG(R) File 357:Derwent Biotechnology Abs

(c) 2000 Derwent Publ Ltd. All rts. reserv.

0228401 DBA Accession No.: 98-09998 PATENT

**Mutant Campylobacter fetus encoding heterologous protein or encoding only one sapA homolog- useful in vaccines, e.g. against infectious abortion or infertility in ungulates, and are only briefly maintained in the host**

AUTHOR: Blaser M J; Thompson S A; Dworkin J

CORPORATE SOURCE: Nashville, TN, USA.

PATENT ASSIGNEE: Univ.Vanderbilt 1998

PATENT NUMBER: WO 9833386 PATENT DATE: 980806 WPI ACCESSION NO.:  
98-437061 (9837)

PRIORITY APPLIC. NO.: US 36321 APPLIC. DATE: 970131

NATIONAL APPLIC. NO.: WO 98US1780 APPLIC. DATE: 980130

LANGUAGE: English

**Campylobacter fetus** surface layer proteins are transported by a type I secretion system

AU Thompson, Stuart A.; Shedd, Omer L.; Ray, Kevin C.; Beins, Michael H.; Jorgensen, Jesse P.; Blaser, Martin J.

CS Division of Infectious Diseases, Department of Medicine, Vanderbilt University School of Medicine, Nashville, TN, 37232-2605, USA

SO J. Bacteriol. (1998), 180(24), 6450-6458  
CODEN: JOBAAJ; ISSN: 0730-2312

PB American Society for Microbiology

DT Journal

LA English

CC 10-1 (Microbial, Alcoholic, and Biochemistry)  
Section cross-referenced to (S):

AB The virulence of *Campylobacter fetus*, a bacterial pathogen of ungulates and humans, is mediated in part by the presence of a paracrystalline surface layer (S-layer) that confers serum resistance. The subunits of the S-layer are S-layer proteins (SLPs) that are secreted in the absence of an N-terminal signal sequence and attach to either type A or B C.

fetus

lipopolysaccharide in a serospecific manner. Antigenic variation of multiple SLPs (encoded by *sapA* homologs) of type A strain 23D occurs by inversion of a promoter-contg. DNA element flanked by two *sapA* homologs. Cloning and sequencing of the entire 6.2-kb invertible region from *C. fetus* 23D revealed a probable 5.6-kb operon of four overlapping genes, *sapCDEF*, with sizes of 1,035, 1,752, 1,284, and 1,302 bp, resp.) transcribed in the opposite direction from *sapA*. The four genes also were present in the invertible region of type B strain 84-107 and were virtually identical to their counterparts in the type A strain. Although *SapC* had no database homologies, *SapD*, *SapE*, and *SapF* had predicted amino acid homologies with type I protein secretion systems (typified by *Escherichia coli* HlyBd/TolC or *Erwinia chrysanthemi* PrtDEF) that utilize C-terminal secretion signals to mediate the

secretion

of hemolysins, leukotoxins, or proteases from other bacterial species. Anal. of the C termini of four *C. fetus* SLPs revealed conserved

structures

that are potential secretion signals. A *C. fetus* *sapD* mutant neither produced nor secreted SLPs. *E. coli* expressing *C. fetus* *sapA* and *sapCDEF* secreted SLPs, indicating that the *sapCDEF* genes are sufficient for SLP secretion. *C. fetus* SLPs therefore are transported to the cell surface by a type I secretion system.

ST **Campylobacter fetus** *sapA* protein sequence; surface layer protein secretion; type I secretion system

IT **Campylobacter fetus** DNA sequences  
Protein sequences  
Secretion (protein)

(**Campylobacter fetus** surface layer proteins are transported by type I secretion system)

IT S-layer proteins

RL: BSU (Biological study, unclassified); BIOL (Biological study)  
(**Campylobacter fetus** surface layer proteins are transported by type I secretion system)

IT Proteins (specific proteins and subclasses)

RL: PRP (Properties)  
(gene *sapC*; **Campylobacter fetus** surface layer proteins are transported by type I secretion system)

IT Proteins (specific proteins and subclasses)

RL: PRP (Properties)

(gene sapD; *Campylobacter* fetus surface layer proteins are  
transported by the secretion system)  
IT Protein

File 155:MEDLINE(R) 1966-2000/Dec W2  
 (c) format only 2000 Dialog Corporation  
 File 5:Biosis Previews(R) 1969-2000/Oct W3  
 (c) 2000 BIOSIS  
 File 73:EMBASE 1974-2000/Sep W3  
 (c) 2000 Elsevier Science B.V.  
 \*File 73: Update codes are currently undergoing readjustment.  
 For details type Help News73.  
 File 143:Biol. & Agric. Index 1983-2000/Sep  
 (c) 2000 The HW Wilson Co  
 File 357:Derwent Biotechnology Abs 1982-2000/Nov B1  
 (c) 2000 Derwent Publ Ltd  
 File 484:Periodical Abstracts Plustext 1986-2000/Oct W2  
 (c) 2000 Bell & Howell

Set	Items	Description
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?ds

Set	Items	Description
S1	8	(RECA (50N) CAMPYLOBACTER?) AND FETUS?
S2	4	RD (unique items)
?s genome? (25n)		campylobact?
	208556	GENOME?
	22186	CAMPYLOBACT?
S3	131	GENOME? (25N) CAMPYLOBACT?
?s s3 and (reca or recombinase?)		
	131	S3
	10751	RECA
	5124	RECOMBINASE?
S4	0	S3 AND (RECA OR RECOMBINASE?)
?e recombinase		

Ref	Items	RT	Index-term
E1	1		RECOMBINART
E2	1		RECOMBINASC
E3	4840	4	*RECOMBINASE
E4	1		RECOMBINASE --DRUG THERAPY --DT
E5	333		RECOMBINASE --ENDOGENOUS COMPOUND --EC
E6	13		RECOMBINASE ACTIVATING GENE
E7	1		RECOMBINASE ACTIVATING GENE GENE
E8	1		RECOMBINASE ACTIVATING GENE RAG-1
E9	1		RECOMBINASE ACTIVATING GENE 1
E10	3		RECOMBINASE ACTIVATING GENE 1 PROTEIN
E11	1		RECOMBINASE ACTIVATING GENE 2
E12	4		RECOMBINASE ACTIVATING GENE-1

Enter P or PAGE for more

?s e3

S5	4840	"RECOMBINASE"
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?e e3

Ref	Items	Type	RT	Index-term
R1	1235		4	*RECOMBINASE
R2	30459			DC=D4.680.265.60.630
R3	613	B	38	NUCLEOTIDYLTRANSFERASE
R4	0	S	1	FLP PROTEIN
R5	0	S	1	FLP RECOMBINASE

?s r1-r5

>>>One or more prefixes are unsupported

>>> or undefined in one or more files.

	1235	RECOMBINASE
	30459	DC=D4.680.265.60.630
	613	NUCLEOTIDYLTRANSFERASE
	0	FLP PROTEIN
	0	FLP RECOMBINASE
S6	31071	R1-R5

Method of delivering antigens for vaccination with a live vector

IN Blaser, Martin J.; Thompson, Stuart A.; Dworkin, Joel

PA Vanderbilt University, USA

SO PCT Int. Appl., 43 pt.

CODEN: PIXXD2

DT Patent

LA English

IC ICM A01N063-00

ICS A61K048-00; C07H021-02; C07H021-04

CC 15-2 (Immunochemistry)

Section cross-reference(s):

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
	-----	---	-----	-----	-----
PI	WO 9833386	A1	19980806	WO 1998-US1780	19980130
	W: AU, CA, JP, US				
	RW: AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT,				
SE	AU 9860503	A1	19980825	AU 1998-60503	19980130
PRAI	US 1997-36321		19970111		
	WO 1998-US1780		19980110		
AB	The present invention provides a mutant <b>Campylobacter</b> fetus strain in which each of the cassettes is replaced by a heterologous antigen. Also provided is a mutant C. fetus strain in which all but one of the cassettes are replaced by a heterologous antigen. Further provided is a mutant C. fetus strain in which recA is mutagenized and a C. fetus strain in which recA is mutagenized and the expressed <b>sapA</b> homolog is a chimera involving a heterologous peptide.				
ST	<b>Campylobacter</b> fetus <b>sapA</b> heterologous antigen vaccine				
IT	Esch				

Nested DNA inversion of *Campylobacter* fetus S-layer genes is  
RecA dependent.

- AU Dworkin, Joel; Shedd, Omer L.; Blaser, Martin J.  
CS Division of Infectious Diseases, Department of Medicine and Department of  
Microbiology and Immunology, Vanderbilt University School of Medicine,  
Nashville, TN, 37232, USA  
SO J. Bacteriol. (1997), 179(23), 7523-7529  
CODEN: JOBAAY; ISSN: 001-9193  
PB American Society for Microbiology  
DT Journal  
LA English  
CC 3-4 (Biochemical Genetics)  
Section cross-references(s): 10  
AB Wild-type strains of *Campylobacter* fetus are covered by a  
monomol. array of surface layer proteins (SLPs) crit. for virulence.

Each cell possesses eight SLP gene cassettes, tightly clustered in the genome,  
that encode SLPs of 90 to 140 kDa. Variation of SLP expression occurs by  
a mechanism of gene rearrangement but involves the inversion of a  
6.2-kb *sapA* promoter-regulating element alone or together with one  
or more flanking SLP gene cassettes. The presence of extensive regions

of identity flanking the 5' and 3' ends of each SLP gene cassette and of a  
Chi-like recognition sequence within the 5' region of identity suggests  
that rearrangement of SLP gene cassettes may occur by a generalized  
(RecA-dependent) homologous recombination pathway. To explore this  
possibility, we cloned *C. fetus* *recA* and created mutant strains by marker  
rescue, in which *recA* is disrupted in either S+ or S- strains. These  
mutants then were assayed for their abilities to alter SLP expression  
either in the presence or absence of a complementary shuttle plasmid  
harboring native *recA*. In contrast to all previously reported programmed  
DNA inversion systems, inversion in *C. fetus* is *recA* dependent.

- ST nested DNA inversion *Campylobacter* S genes;  
*Campylobacter* S-layer genes inversion RecA  
IT Homologous recombination (genetic)  
(RecA-dependent) SLP gene inversion of *Campylobacter* fetus  
S-layer genes is RecA dependent  
IT *Campylobacter* fetus  
Inversion (genetic)  
(nested DNA inversion of *Campylobacter* fetus S-layer genes is  
RecA dependent)  
IT RecA protein  
RL: BAC (Biological activity, effector, except adverse); BIOL  
(Biological study)  
(nested DNA inversion of *Campylobacter* fetus S-layer genes is  
RecA dependent)  
IT S-layer proteins  
RL: BSU (Biological study, classified); BIOL (Biological study)  
(nes



Segmental conservation of **sapA** sequences in type B.

**Campylobacter** fetus cells

AU Dworkin, Joel; Tummaruru, Murali K. R.; Blaser, Martin J.

CS Div. Infectious Dis., Vanderbilt Univ. Sch. Med., Nashville, TN, 37232-2605, USA.

SO J. Biol. Chem. (1995) 270(25), 15093-101

CODEN: JBCHA3; ISSN: 0021-9258

DT Journal

LA English

CC 3-3 (Biochemical Genetics)

Section cross-reference(s): 6, 10

AB **Campylobacter** fetus cells may exist as either of two defined serogroups (type A or B) based on their lipopolysaccharide (LPS) compn. Wild-type strains contain surface array proteins (S-layer proteins) that have partial antigenic cross-reactivity but bind exclusively to LPS from homologous (type A or B) cells. Type A cells possess 8 homologs of **sapA**, which encodes a 97-kDa S-layer protein; the gene products of these homologs have a conserved N terminus of 184 amino acids. To

further

explore the structural relationships between the C. fetus S-layer proteins

and their encoding genes, the authors sought to clone and express an S-layer protein from type B strain 84-91. The cloned type B gene (**sapB**) was similar in structure to the previously cloned type A gene (**sapA**) and encoded a full-length 936-amino acid (97-kDa) S-layer protein. Sequence anal. of **sapB** indicated that the conserved N-terminal encoding region in **sapA** was absent but that the remainder of the ORF (encoding 751 amino acids) was identical to that of **sapA** in spite of the nonconserved nature of this region among **sapA** homologs. Noncoding sequences both 300 base pairs 5' and 1000 base pairs 3' to the **sapB** and **sapA** ORFs, including the **sapA** promoter and transcription terminator sequences, were essentially identical. Southern analysis revealed that the **sapB** N-terminal encoding region was conserved in multiple copies in type B strains but was absent in type A strains. Recombinant **sapA** and **sapB** products bound to a substantially greater degree to cells of the homologous LPS type compared with the heterologous LPS type, indicating that the conserved **sapA**- and **sapB**-encoded N termini are crit. for LPS binding specificity. The parallel genetic organization and identity at the nucleotide level in both coding and noncoding regions for **sap** homologs in types A and B cells indicates the necessity of both homolog conservation and high fidelity DNA replication in the biol. of **sap** diversity.

ST gene **sapA** **sapB** sequence conservation **Campylobacter**;

lipopolysaccharide S layer protein **Campylobacter**

IT Lipopolysaccharides

RL: BSU (Biological study, unclassified); BIOL (Biological study) (binding of S-layer proteins to; segmental conservation of **sapA** sequences in type B **Campylobacter** fetus cells)

IT Proteins, specific cloning

RL: BOC (Biological occurrence); PR (Properties); BIOL (Biological study); OC (Occurrence)

(gene **sapB**, segmental conservation of **sapA** sequences in type B **Campylobacter** fetus cells)

IT Gene, m

Surface array protein of *Campylobacter fetus*. Cloning and gene structure

AU Blaser, Martin J.; Gotschlich, Emil C.  
CS Lab. Bacteriol. Immunol., Rockefeller Univ., New York, NY, 10021, USA  
SO J. Biol. Chem. (1990), 265(24), 14529-35  
CODEN: JBCHA3; ISSN: 0021-9758  
DT Journal  
LA English  
CC 3-2 (Biochemical Genes)  
Section cross-references  
AB The high mol. mass (97-140 kDa) surface array proteins (SAP) of *C. fetus* are crit. to virulence. A bank of 160,000 random 1.0-6.5-kilobase (kb) chromosomal DNA fragments of *C. fetus* strain 84-32 (23D) was created using  $\lambda$ .gt11. Screening this bank in *Escherichia coli* Y1090 with antibody raised against purified SAP permitted isolation and purifn. of a clone with a 4.0-kb insert. Subcloning this insert in the *E. coli* vector, pUC9, permitted expression of protein of approx. 100 kDa, not fused with  $\beta$ -galactosidase or inducible by isopropyl- $\beta$ -D-thiogalactopyranoside. Digestion with restriction endonucleases and construction of deletion mutations indicated that the gene extended over 2.8 kb, proceeding toward the start of the  $\beta$ -galactosidase gene. Taking advantage of a unique PstI site at 1.7 kb, the authors subcloned PstI-EcoRI fragments in both orientations into M13 vectors, then generated and sequenced 48 deletion mutants. In the 3974-base insert, an open reading frame, beginning at nucleotide 24 and terminating at 2825, was found to encode a 933-amino acid polypeptide having a calcd. mol. mass of 96,758 daltons. The first 20 amino acids exactly match those detd. from amino-terminal sequencing, indicating that this protein is secreted without a leader sequence. The deduced amino acid compn. matches that of the purified SAP. A ribosomal binding site was identified 9 bases upstream and a putative transcription terminator 21 bases downstream. There is partial homol. of primary and secondary structure with 5 other bacteria

Set	Items	Description
S1	7063	E1-E50
S2	3362	E3-E50
S3	7645	R1:R5
S4	4	E1-E2
S5	8291	S2-S4
S6	0	S5 AND GHOST?
S7	263	S5 AND (HETEROLOG? OR FOREIGN? OR CARRIER? OR CHIMERI?)
S8	190	RD (unique items)
S9	9	S8/1998:2000
S10	181	S8 NOT S9

?s s2 or s4

3362 S2

4 S4

S11 3362 S2 OR S4

?s s11 (5n) chimera?

3362 S11

131092 CHIMER?

S12 1 S11 (5N) CHIMER?

?t s12/kwic

>>>KWIC option is not available in file(s): 77

12/KWIC/1 (Item 1 from file: 155)

DIALOG(R)File 155:(c) format only 2000 Dialog Corporation. All rts. reserv.

; Amino Acid Sequence; Aminoglycosides--Pharmacology--PD; Base Sequence; Campylobacter fetus--Drug Effects--DE; **Campylobacter fetus** --Enzymology --EN; **Chimera** ; Cloning, Molecular; Drug Resistance, Microbial; DNA, Bacterial--Genetics--GE; Electrophoresis, Polyacrylamide Gel; Molecular Sequence Data...

?t s12/9/all

PATENT NO.: 5,571,674  
ISSUED: November 05, 1996 (19961105)  
INVENTOR(s): Hoshina, Sadayori, Tokyo, JP (Japan)  
Weinstein, I. Bernard, Englewood, NJ (New Jersey), US (United States of America)  
ASSIGNEE(s): The Trustees of Columbia University in the City of New York,  
(A U.S. Company or Corporation), New York, NY (New York), US  
(United States of America)  
[Assignee Code(s): 8871]  
APPL. NO.: 8-227,475  
FILED: April 14, 1994 (19940414)  
PRIORITY: 2-246383, JP (Japan), September 18, 1990 (19900918)

This application is a continuation of U.S. application Ser. No. 07-672,691, filed Mar. 18, 1991, now abandoned, which is a continuation-in-part of U.S. application Ser. No. 408,881, filed Sep. 18, 1989 now abandoned, the contents of all of which are hereby incorporated by reference into the subject application.

The invention described herein was made in the course of work under Grant No. NCI CA 021111 from the National Institutes of Health. The U.S. Government has certain rights in this invention.

FULL TEXT: 1522 lines

...and C-sense. The order of lanes is as follows; Lane 1: Hae III digested **phi X174** DNA size marker; Lane 2: amplified *C. pylori* strain ATCC 43526 DNA; Lanes 3-12...

... examination of a portion of a strain-specific sequence. DNA was extracted from *E. coli*, **Campylobacter** and *Helicobacter*, then, absorbed onto a nylon membrane. This absorbed DNA was then hybridized with...  
... Lanes 1 and 10 contain samples which comprise a DNA size maker (Hae III digested **phi X174** DNA). Lane 2 contains a sample which comprises a negative control, i.e. buffer. Lane...

... a sample which comprises *H. pylori* ATCC 43504. Lane 5 contains a sample which comprises **Campylobacter** *concisus* ATCC 33237. Lane 6 contains a sample which comprises *C. cinaedi* ATCC 35683. Lane...

?logoff hold

05apr00 12:02:56 User228206 Session D1171.3  
\$1.30 0.221 DialUnits File654  
\$0.65 1 Type(s) in Format 3  
\$0.65 1 Types  
\$1.95 Estimated cost File654  
\$0.05 TYMNET  
\$2.00 Estimated cost this search  
\$4.84 Estimated total session cost 2.556 DialUnits